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**Chronological Report**  
**Covering Investigations on the Copper River**  
**By**

Shirley A. Baker, Assistant Agent,  
Oct. 1 to Oct. 18, incl., 1921

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October 1: In Cordova waiting for train to go to Chitina. There will be no regular schedule of trains out of Cordova, beginning with to-day. The agent of the Copper River & Northwestern Ry. Co. having informed me that the company will likely run a train from Cordova to Chitina on the morning of the 3d, I telegraphed the Commissioner that I would leave Cordova on this date for Chitina en route to the Upper Copper River.

October 2: I met Mr. G. W. Wolfe, an employe of the C.R. & N.W. Ry. at Cordova, who has recently returned from a trip up Copper River and the Bremner River, one of the tributaries below Chitina. I had an extended conference with Mr. Wolfe and learned from him at first hand important facts concerning the run up Bremner River this year as compared with last year.

In discussing the salmon runs in that region, Mr. Wolfe stated:

"I left Cordova about the 5th of last month (September) for Chitina, where I obtained a small row boat and came down the Copper River to Mile 67. Charles Kelsman, an engineer on the C.R. & N.W. Ry., and Otto Amolang, a blacksmith, accompanied me on this trip. On the morning of the 15th, we went across Copper River and started up the Bremner River to the upper end of what is known as Three Mile Canyon, which is about 32 miles up Bremner River. We were four days going up river and three days coming back down to the mouth.

"I have a mining claim up this river, and I make a trip up there every summer or fall to see about the claim. There is no one living on the river.

"We went a short distance up several of the little creeks draining into the Bremner River for the purpose of finding a suitable place to camp. I saw a good number of red salmon in all of the creeks I went up. I also saw salmon in different shallow places and pools in the Bremner River. I think Fern Creek is one of the best salmon creeks running into the Bremner."

I asked Mr. Wolfe the distance from the mouth of Fern Creek to the mouth of the Bremner.

"Fern Creek is about 15 miles up Bremner River, on the right hand side going up river. I saw what I would judge to be about 300 salmon in this creek,--several times as many as I ever saw before."

"How do you think the run this year compares with last year?" I asked.

"I am sure that the run is two or three times more than it was last year, or even the year before. Some of the prospectors and Indians told me at Chitina that the run was also much better up river than the year before,--1918 was a good year."

October 3: The train has been postponed until October 5, to await the arrival of a passenger boat on October 4, from Seattle.

October 5: At 8:00 a.m., I left Cordova on the C.R. & N.W. Ry. Co.'s train for Chitina, arriving at Mile 78, or Bremner Station, which is 11 miles above the point where the Bremner River flows into the Copper River.

Here I talked with Louis Dahl--an old-timer, and a very reliable man--about salmon runs up Bremner River. He told me he had been making trips up that stream, either during the summer or fall, for about 12 years, for the purpose of doing improvement work on a mining claim which he is holding.

Mr. Dahl said he always observed the salmon up this river, because it was necessary sometimes to catch a few to eat; that before 1916 he saw lots of red salmon, but since that time salmon had not been so plentiful until this year. He further stated that he made a trip up the Bremner sometime during the first part of September, when he saw many salmon in the lake, about five miles above the mouth of the river.

"There is a lake five miles above the mouth of this river?" I asked.

"Well, everybody calls it a lake, but it is really a round, widening place in the river, about four miles long and a mile and a quarter wide. Below and above this lake the river is very narrow. The water is more sluggish at this place and is not very deep."

When asked for his opinion regarding this year's salmon run up Bremner River as compared with other years, Mr. Dahl said,

"There's no doubt that the run this year was the best

for several years."

Arrived at Chitina at 5:00 p.m.

After talking with several old residents, I decided to hire an auto and proceed straight to Gulkana Lake, which is near the Fairbanks Trail.

October 6: I hired Mr. Breedman's automobile and left Chitina at 7:30 a.m., arriving at Gulkana Roadhouse at 5:30 p.m. This roadhouse is 76 miles from Chitina.

On the trail we met several Indians and white prospectors with whom I discussed the salmon situation. It is the general opinion of the residents between Chitina and Gulkana that the first run of salmon follows a direct course to the head lakes of the main Copper River,--the Bartzulneta, Mantasta, and Susloto Lakes, and Copper River Lake, better known as Tanada Lake.

Among several old-timers who talked with me about the salmon runs, I met Bill Beraill. Mr. Beraill was pointed out to me as being most trustworthy and reliable, as well as being the best informed man in that section of the country regarding the Upper Copper River and its tributaries. He is positive that the greater part of the first salmon run in the Copper River each year goes straight for the head waters of that river and enters the four head lakes above named.

It seems to be the general opinion also of all the whites and Indians with whom I conversed on this subject that the individual fish of the red salmon run entering these head lakes average a little smaller in size than those of the red salmon run entering the Tazlina, Klutina, and Tonsina River Lakes.

The following catches were made this year at or near the mouth of Gulkana River by Indians:

Little Stick Man--fished 3 miles below the mouth of the Gulkana, on Copper River; caught 57 reds, 21 kings. He caught 19 reds and 15 kings last year.

Snell Ketting--fished near the mouth of the Gulkana, on Copper River; caught 219 reds, 75 kings. He said he caught only a few fish in 1920, but could not remember the number.

Gulkana Jean--fished 4 miles above mouth of Gulkana River; caught 185 reds, 86 kings. Stated he caught about 75 reds and 20 kings last year.

October 7: Left Gulkana Roadhouse at 7:00 a.m., en route to Gulkana Lake. Passed Sour Dough Roadhouse at 11:45,--no one there. Arrived Meiers' Roadhouse at 4:15 and stopped for the night. (125 miles from Chitina)

October 8: At 7:30 a.m., I left Meiers' Roadhouse for Gulkana Lake, arriving at Paxton's Roadhouse at 10:45 a.m. This roadhouse is located about a mile above the head of the lake on the Fairbanks and Chitina Trail.

I walked around the shore at the head of the lake and then went a short distance up two or three small creeks on the left shore at the upper end of the lake. I found the skeletons of 5 salmon which I believed to be those of red salmon, at the mouth of one of these little streams, called Salmon Creek. This creek appeared more adapted to spawning salmon than any other creek that came under my observation at the head of Gulkana.

Salmon drying racks and fish caches, built up in trees about ten feet from the ground, indicate that fishing operations have been previously carried on at this point for the taking of salmon by both whites and Indians. The bears are so numerous at the head of this lake that it is necessary to build these high caches in the trees. Bear trails led through the swamp in various directions, coming out to the lakeshore in many places, and almost every point or solid tuft of ground at the edge of the water had been utilized as a feeding place by the bears.

On the sand bar at the head of the lake, near the stream connecting Gulkana Lake and Summit Lake, were hundreds of fresh bear tracks of all sizes. A thin sheet of ice had formed over the head of the lake, extending out 10 to 30 feet from shore, and on the night of October 6 a light snowfall had covered the sand flats, so that the tracks were plainly visible in the snow. All along the shore at this point the thin ice had been broken through by the bears. One track which I measured was 12 inches across. The great number of bear tracks seen here is sufficient evidence to indicate that a considerable number of these animals visit the lake and feed on the salmon during the run.

Sour Dough Jim, an Indian who has been fishing in this lake for about 12 years, stated that there was a good escapement of red and king salmon in Gulkana Lake this year, but a very poor run last year and the year before. He told me his catch for 1920 was 170 reds and 45 kings; for this year 265 reds and 100 kings, and that he could have put up a great many more if he had needed them. He also said,

"Bear eat heap plenty salmon."

Sour Dough Jim's statement was borne out by Fred Nichols, a man living at Paxton's Roadhouse, who stated that he caught or put up 300 red fish and 125 kings this year, and that he could have put up more if he had had need for them.

Mr. Stevenson, U. S. operator at Paxton Lake station, told me that a good, steady run of salmon poured through the stream connecting Gulkana Lake and Summit Lake during the last two weeks of July and the first part of August.

After making a survey around the head of Gulkana Lake, (Gulkana means saw tooth or crooked river) we drove up to Summit Lake, about 5 miles above Gulkana, near the Fairbanks trail.

Thin ice had formed all around the lake, a few feet out from the edge of the shore, and there was about four inches of snow on the ground that had fallen on the night of the 6th. Seeing that it was too late to accomplish anything here, I returned to Meiers' Roadhouse. Left Summit Lake at 4:15 p.m., and arrived at Meiers' Roadhouse at 6:50 p.m.

Meier's Roadhouse.....	125 miles from Chitina
Summit Lake.....	149   "   "   "
Paxton's Roadhouse.....	143   "   "   "

Charlie Meiers, who has been running what is called Meiers' Roadhouse for about 15 years and says he has visited Gulkana Lake nearly every year during the salmon season for the past 12 years, states that the run this year compares in size with the salmon run of 1918, when there was a good run to Gulkana Lake.

I asked him if he would call the run this year a big run, and he replied,

"No. It doesn't compare with the salmon runs six, seven, eight, nine and ten years ago."

He stated that he could remember seven and eight years ago, when the dead salmon were floating thick in the lake and were strewn all along the lake shore.

October 9: Left Meiers' Roadhouse at 7:15 a.m. for Copper Center.

Between Gulkana and Copper Center, I passed a number of Indians (two men, three women, and three children) on the trail going out to hunt caribou and moose. I questioned them about

the run on the Tazlina and they all agreed that, while the run going up the Tazlina River was poor this year, it was a little better than last year. They also claimed that more salmon go up the main Copper River than go up the Tazlina.

One of the Indian men, Tazlina Pete, said he caught 75 reds and 17 kings.

This Indian said that the Tazlina River is about fifty miles in length from the mouth to the lake. When I asked him the meaning of Tazlina in English, he replied,

"Swift water."

At 7:20 p.m., I arrived at Copper Center.

October 10: In company with John McCrary, I left Copper Center at 6:30 a.m. with three pack horses for Klutina Lake.

We followed an old trail which leads along the bank of the Klutina River to the lake,--a distance of 32 miles. We had been on the way only two hours when a steady rain began falling. This added not a little to the difficulty of traveling with pack horses over an uneven trail blocked with fallen trees and overgrown with underbrush.

We had traveled all day and until after dark, so decided to make camp at a place about four miles from Klutina Lake, known as the Big Eddy. At this point the river spreads over a big, low, flat country, forming many channels and islands. Between the Big Eddy and the outlet of the lake, the river bed is evidently well worn, and is confined to a deep channel, because here the stream flows more gently and with a considerable depth of unbroken water. Several eddies are formed between the Big Eddy and the outlet of the lake by an expansion of the stream at or near a bend in the river, or by points extending out into the river, which are sometimes caused by slides.

October 11: Left camp at 9:00 a.m., arriving at Klutina Lake at 10:45 a.m.

Scattered all along from the Big Eddy to the upper end of the lake, there are a great number of old, dilapidated cabins which were formerly occupied by prospectors and miners during the early days from 1898 to 1905. Deserted salmon drying racks, net racks, and fish caches along the bank of the upper river and lake indicate that in years gone by salmon was taken quite extensively for the preparation of dog feed and for human consumption. These

activities are said to have been carried on by both Indians and whites.

October 11 and 12: At Klutina Lake.

Soon after our arrival at the outlet of the lake, Chief McKinley Jim, Big Charlie, and four other Indian men came across at the lake runoff to see who our party might be and for what purpose we were there.

I had a long and interesting conversation with the chief and gathered in a round-about way some valuable information about the lake and its tributaries and the surrounding country. I told him I intended going on to the head of the lake to see if I could observe any spawning salmon in the creeks and head waters, but he informed me that I would not see any salmon, explaining that the last salmon had disappeared some two weeks previous to that time, or about September 30. He said he had been up all the creeks at the head of the lake at different times during September, and that he had seen only a very few salmon. I asked him what he considered the best salmon streams running into the lake, and he named St. Anne Creek and Salmon Creek.

Chief McKinley claims that many red salmon and a few king salmon go up St. Anne's Creek, which flows into Klutina Lake from the west near the north end.

McCrary, my guide, and also Chief McKinley believe that most of the salmon spawn in the St. Anne Creek and that only a few of them ascend the little lake at the head of the creek, which is called St. Anne Lake, being drained by St. Anne Creek.

St. Anne Creek is about six or seven miles long, and the lake is about five or six miles long and a mile and a half in width. The lake is very shallow at the lower end, and white fish, ling cod, and other lake fish are found there in great numbers, according to the chief.

Chief McKinley, Big Charlie, and McCrary all stated as their opinion that Salmon Creek is the most suitable and best red salmon spawning stream flowing into Klutina Lake. The chief said he had seen great numbers of dead spawned-out salmon three and four miles up this stream several years ago.

The chief further stated that he had seen less salmon in this region this year and last year than ever before. When I asked him about the number in the lakes, he said,

"Last year halo salmon (meaning no salmon) in Klutina and

Tazlina Lakes. This year, maybe little more."

He said that all the Indians together caught only 45 salmon at the lake this year, and that they had come up from Copper Center on the 15th of August to fish.

I walked up Salmon Creek for about three-quarters of a mile, but found no trace of any spawning salmon. Of course, it must be taken into consideration that the spawning season was over. However, the creek looked very favorable for a salmon-propagating stream and, I believe, deserves its name and reputation as a good spawning ground for red salmon. Salmon Creek empties into Klutina Lake on the southeast shore about a mile and a half above the lake runout. The creek itself is clear and free from glacial waters, and the creek bed is mostly coarse gravel with occasional water-worn stones. The further upstream we went, the more winding was the bed of the creek, and there was a series of little short, shallow sloughs running into the main creek, causing tiny ripples and pool-like places which are very favorable for the support of salmon.

On the afternoon of the 12th, we returned to the point below the lake runout near the Big Eddy, where we had previously camped. We thought best to stop here for the night and get an early start in the morning for Copper Center, rather than to attempt traveling on the old trail so late in the day.

October 13: Left Big Eddy at 7:30 a.m., for Copper Center. On our way down, following the river bank, the guide and I kept a close lookout for Big Charlie and two other Indians who had left Klutina Lake the day before in a skin boat. Big Charlie's wife was very ill from an attack of inflammatory rheumatism, and it was impossible for her to walk or ride horseback, so Big Charlie and the chief held a pow wow and consulted with the guide and me about the feasibility of coming down the Klutina River in a staunchly made skin boat which they had just finished constructing out of goat and sheep skins in order that they might take the almost helpless woman to a physician. We told the Indians that such a journey was feasible all right, but that it would be necessary to have a good man to steer from the stern of the boat and another good man to keep the bow of the boat headed upstream and row like the devil all the time,--especially when approaching the numerous treacherous places where there are large boulders. We advised the Indians to line the boat downstream when they reached Devil's Elbow and Horse Shoe Bend, two of the most dangerous spots in the river. Noticing so many swift, rocky places that we had not observed before while we were going down the trail on the bank of the river, we became somewhat uneasy about the Indians, wondering whether they had succeeded in passing through these ugly waters safely.

Immediately after arriving at Copper Center that evening, I called to see the Indian chief and told him about the party coming down Klutina River with the sick woman. As they had not been seen or heard of since leaving the lake, I suggested that a search party be sent out. The Indians arranged to do this the following morning.

October 14: At Copper Center.

Just as the search party was ready to start, we heard some peculiar Indian yells, and looking up toward the Klutina River bridge saw Big Charlie rowing, for all he was worth, the little skin boat which held his sick wife and the other Indian who did the steering. They were dripping wet from the splashing waters, but they were very happy and proud of the fact that they had safely navigated the swift Klutina River.

(Klutina means long way to head lake.)

About 10:00 a.m. I went across Copper River and visited former Chief Jackson, Chief McKinley George, and former Chief McKinley Jim. I asked Chief McKinley George to call together all of the Indians around Copper Center for the purpose of discussing the salmon situation in Copper River.

At 2:00 o'clock that afternoon, I interviewed eighteen Indian men, and gathered some very valuable data regarding the runs and catches of salmon for the two previous years, as well as for the present year.

Noticing that some of the Indians were inclined to hold back the facts in many cases, I told Chief McKinley George and Chief Jackson that I wanted the truth from them regarding the fish caught and the runs. I said,

"I heap plenty savey Indian for long time. I drive dog team with Eskimo. Plenty times catch fish with Indian. Indian no fool me when he lie."

Turning to the chief, I said, "I know you tell truth. Some of your Indians tell different stories. That's why I like to talk with Big Indian Chief. You see, I all the same Fish Chief, like you are. Indian Chief and I want to know the truth so I can tell my Big Fish Chief away back in Washington. We are your friends."

There were a few moments of silence and then a pow wow, when the presiding chief said,

"You heap fine man. All same Fish Chief. We tell

you all."

He said all the Indians agreed that the red salmon run this year was a little better than last year, when there was the smallest run of red salmon every known up Copper River; that the year before (1919) was poor but somewhat better than 1920. The Indians also stated that there was a good run of king salmon this year and a fair run of silver salmon.

I asked the chief about the different runs of red salmon in the Copper River. He believes that the first run ascends to the head lakes, and he also stated that the individual fish of this run are smaller in size than the red salmon that ascend the lower tributaries flowing into the Copper River.

Below is a statement giving the number of salmon caught by all the natives and whites around Copper Center this year.

Mary Craig\*

300 red salmon  
60 king salmon

Mary Craig's corrected catch

468 red salmon  
60 king salmon

Skookum John

250 red salmon  
50 king salmon

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\*Having been informed that Mary Craig sold from one to three salmon each day to the local roadhouse, and also used two or three daily during the active fishing season for dog feed, I asked her if this was true and she said it was. I then asked her when she began operating her fish wheel and when she stopped fishing. She told me she had fished from June 15 to August 10--fifty-six days. So, in order to be fair in estimating the number of fish she really sold and used at home, (and also to get as nearly as possible a correct count of the salmon actually caught by each Indian) I added three salmon per day for 56 days to the number which she had on hand, and which she had already told me represented her season's catch.

I explained the matter very thoroughly to the Indian woman and also to the chief and the other Indians, telling them that in order to find out the total number of salmon caught by the Indians operating fish wheels and other appliances, they should tell me as nearly as possible how many salmon they had sold, fed to their dogs, and eaten themselves during the fishing season,--because the number of salmon on hand in their caches then did not represent their total season's catch. After considerable explanation, they seemed to understand what I was driving at.

McKinley George  
450 red salmon  
100 king salmon

Henry Allen  
200 red salmon  
25 king salmon

Chief McKinley Jim  
420 red salmon  
110 king salmon

Copper Center Pete (Fish wheel went out July 5.)  
20 red salmon  
10 king salmon

Frank Ewan  
27 red salmon (Fished at Mission on Copper River )  
18 king salmon (about  $1\frac{1}{2}$  miles above Copper Center. )

Chief Jackson (Big Jack)  
120 red salmon  
60 king salmon

Charlie Underwood  
225 red salmon  
120 king salmon

Twenty-one other Indians operated the fish wheel belonging to Chief McKinley Jim, about two miles below Copper Center, during the last three weeks of June, and caught 252 red salmon and 105 king salmon. These were divided equally among the twenty-one Indians.

John McCrary and Mr. McCloud operated two fish wheels,--one about a half mile and the other about three quarters of a mile above Copper Center. They caught 1,500 red salmon and 750 king salmon. Mr. McCrary dried about 300 of these salmon, and put up the rest in five-gallon cans for fox feed for the winter.

During the day I also interviewed Mr. Frank Carroll. He confirmed the statement made by several other white residents, as well as by the Indians with whom I had talked, that there had been a fair escapement of both red and king salmon up the main Copper River this year. He stated that the runs up the Klutina and Tazlina Rivers were not so good this year as the run up the main Copper, basing his opinion on reports from different whites and Indians who had visited those particular streams this season.

I had an interesting talk that evening with Mantasta Pete, who had not long since returned from Mantasta Lake. He assured me

that there was a moderately good escapement of red salmon and king salmon to the headwaters of Copper River--Mantasta and Tanada Lakes--but said, "Last year--(1920) halo salmon,--" and then, "1919,--maybe little bit," which, with the Indians, sometimes means a fair run.

This Indian also believes that the individual salmon ascending the head lakes above mentioned are not as large as the individual salmon that go up the lower tributaries of the Copper River.

It will be noted that the consensus of opinion among a good many old white residents, as well as among the Indians, is that the main first run of red salmon ascends to the headwaters of the Copper River, and that the individual fish are a little smaller than the red salmon that ascend the lower rivers flowing into the Copper River. While the inference drawn from the many statements made regarding the size of the individual fish might be open to criticism, I am not inclined to doubt these statements, inasmuch as such knowledge as we have on the subject is based entirely upon observations made by reliable and conscientious men. Therefore, I believe the matter should be given consideration and that a careful investigation should be made by the Bureau.

There is no doubt in my mind that there are several distinct salmon runs in the Copper River, as there are seven or more tributary rivers to the Copper which are good salmon propagating streams. Each one of these streams likely has its individual run of salmon.

It is also evident that the individual red salmon of the first run appearing at the mouth of the Copper River is a little smaller fish than that of the later runs,--taking into consideration the number of fish required per case during the first part of the season as compared with the number required per case when the more advanced runs appear.

In all, seven fish wheels were operated around Copper Center this year by the Indians. This number includes the above mentioned wheel of Chief McKinley Jim, who allowed other members of the tribe to use his wheel after he had taken all the fish he himself required.

During the afternoon I suggested pushing a fish wheel off-shore into deep water. This wheel had previously been hauled in on the river shore for the winter. I told the Indian owner that I thought he would catch silver salmon, but he said,

"No. Too late."

After crossing the river, I noticed that one of the fish wheels belonging to Mr. McCrary was still in the water where it could

easily be put in operation. Mr. McCrary and I took two poles and pushed the fish wheel out into deep water where the current would turn the wheel and it would fish. About two hours later we went back to see if any salmon had been caught. We found three fine silver salmon in the spiller, which demonstrated that there were some silver salmon in the river.

October 15: Left Copper Center at 9:30 a.m. in Breedman's automobile for Tonsina Roadhouse, arriving there at 2:40 p.m. For the past two months the Road Commission had been hauling supplies and heavy equipment over the trail in big auto trucks; consequently, the road was badly cut up.

At Tonsina Roadhouse I had an extended conversation with the proprietor, Mr. Nafsted, and also with two Indians who were cutting wood for winter's use at the roadhouse. The gist and agreement of all the conversation was that a fair run of red and king salmon had passed up the main river this year, and that the run was larger than the runs of either 1920 or 1919. In their opinion, the escapement of red salmon in the Tonsina River this year was poor.

Mr. Nafsted believes that the greater part of the last run of red salmon in Copper River ascends the Tonsina River,--and perhaps the Klutina. He thinks the canneries operating down on the Copper River Flats and in Abercrombie Canyon have their fishermen better organized by the middle and latter part of the season, and therefore make bigger catches in proportion to the volume of the run, than they do at the beginning of the season.

October 16: Left Tonsina Roadhouse at 9:30 a.m., en route to Chitina. On the way I stopped at Tonsina River Village, which is located a few miles above the mouth of the Tonsina River. At this point I interviewed Chief Douglas Billam, in the presence of several other Indians. Valuable information was gathered from the chief regarding the salmon runs for this year and last year. He said the Tonsina Indians under his supervision began fishing on June 25 and fished until August 15. Two or three miles below the mouth of the Tonsina River, about ten miles above Chitina, on the Copper River, the tribe operated altogether five fish wheels. Here they caught nine bales of red salmon, two bales of king salmon, and one bale of silver salmon. (A bale contains 40 salmon.)

I asked the chief why the Indians did not fish in the Tonsina River or at its mouth. He replied that they had fished at the particular spot where they were then fishing for a long, long time, due to the fact that there were several big eddies and the conditions in general were more favorable for operating fish wheels here than in the Tonsina. I asked him why he waited so late before he began fishing this year.

Answering, he said,

"Too much logs. Little trees and turf coming down river all time during early fishing season. Sometimes carry our fish wheel away. Indians at Chitina no have much trouble like Tonsina Indians. Me hear Indians at Chitina catch plenty salmon. You see, early run go up Copper River. Tonsina Indians no catch many first run. Trees and trash all coming down river time first run. Indians no can put wheel in river then. Get washed out. Big run all go by before wheel in river. Last year no good run, but Indians catch more salmon because ice go out early and not much bad weather. Indians put fish wheel in river June 15. Last year Indians catch twenty bales red salmon (800)--three bales king salmon. (120) This year canneries catch too much salmon last run and Indians no catch many."

"Do you think salmon run better last year?" I asked.

"No," he replied. "Maybe first run little better this year."

In this section of the country, during the month of July, about three weeks are required under favorable conditions, according to the chief, to properly cure salmon. The Indians make practically no efforts to dry fish after the first of August. They claim that weather conditions are unfavorable for drying after that date, and they state they lose all the fish they attempt to cure, on account of damp weather; that drying fish the latter part of the season become mildewed and decay. It is, therefore, the first run of salmon which provides food for the natives on this river. They catch only a few during the latter part of the season, and these are for daily use.

Arrived at Chitina at 4:30 p.m.

October 17: The entire day was devoted to the study of the salmon situation in the Chitina district.

Having been told that a big run of salmon had gone up Chitina Creek during the season, I went to the point between the passenger station and the round house, where the creek passes under the C.R. & N.W.R.R. tracks. I walked up the creek from the place where it empties into the lake near the railroad station, to the first lake at its head in the valley above the town. However, during this walk, I observed no evidences of salmon.

The creek is about three quarters of a mile long and flows through the town of Chitina, draining two small shallow lakes in the valley above the town. The bed is from three to nine feet wide, with an average depth of from four to ten inches.

The first lake at the head of this creek would undoubtedly be a good spawning area for the salmon, but for the fact that some of the residents have used the creek as a dumping ground for all kinds of refuse, thus forming little barriers which in some places entirely block the ascent of salmon to the lake. Unless a rainy season is experienced, causing high water in the creek, there is apparently no opportunity for even a small escapement into the lake.

I suggested to the local authorities that some attention be given to the clearing of this stream of the debris collected therein, and also that there should be some town ordinance enacted imposing a fine on any person caught dumping refuse of any kind into the creek or lake. Otherwise, the salmon run in this stream will be seriously depleted within a short time.

During the afternoon, by previous arrangement, I met Messrs. Johnny Nelson, S. O. Breedman, Joseph V. Pippin, J. E. Drake, and Judge Wm. O'Connor, who had been living in the Copper River Valley for from seven to twenty-two years. I discussed with them at first-hand their views and findings regarding the runs of the different species of salmon in the Copper River, and learned some important facts. Their many years of experience while traveling about in the Copper River region had afforded them valuable opportunities to make extensive observations.

Mr. Pippin did not think the salmon run this year in the Tonsina, Klutina, and Tazlina Rivers was any better than last year, but he was sure that the main Copper River had a better escapement this year than during the last two years. Commenting further on the latter river, he said,

"There was a very good run of kings and red salmon from about June 5 to the 30th (the first run), and all of the old white residents, as well as the Indians, believe that the greater portion of the first run goes to the headwaters of the Copper River."

Judge O'Connor, Mr. Breedman, and Mr. Drake all agreed that a very good run of red salmon had gone up the Copper River this year, stating that the Indians around Chitina caught all the fish they required for the winter from the 13th of June to the 25th. Judge O'Connor and Mr. Breedman stated the best run of king salmon that the Upper Copper River had enjoyed for several years went up river by Chitina from June 1 to June 30. They claimed the Indians caught all the salmon they required from June 13 to June 25, and that practically all of the Indians quit fishing during the last week of June to prepare to go to

Gulkana Village about 76 miles above Chitina up Copper River to attend one of their well-known "Pot Latches". They began returning about the middle of July.

Speaking of the runs up the Chitina River, Mr. Pippin said that only a few red salmon stragglers went up this stream with the main silver salmon run during the latter part of the season. Both he and Mr. Drake believe that fifty per cent. of the salmon ascending the Chitina River finally head up one of the upper tributaries, known as Fish Creek.

According to these gentlemen, there is at the head of this creek a little lake of great depth, long and narrow, which lies parallel to the Copper River and Northwestern Railroad, and is known as Long Lake. This lake is about five miles long and from a quarter to a half mile in width. It is fed by springs and little mountain streams that come mostly from melting snow banks; consequently, the level of the lake should be about the same all the time. Both Mr. Pippin and Mr. Drake stated that salmon are seldom ever noticed in Long Lake before the first of August.

It is the belief of Mr. Pippin that the greater portion of the red salmon run spawns in Fish Creek, while the silver salmon spawn in Long Lake. This is also the opinion of Chief Douglas Billam.

Later in the evening I visited Chief Comfortjoe, at the Chitina Indian Village, and obtained the following statement regarding the number of fish wheels operated and the number of salmon caught by the Chitina Indians this season:

<u>Name of native fisherman</u>	<u>No. wheels used</u>	<u>Reds Taken</u>	<u>Kings Taken</u>
Chief Comfortjoe	2	1,400	125
Eskiliea (Old Chief)	1	800	45
Tony Pete	1	400	19
Dick Eu Franey	1	500	25
Joe Goodlatah	1	500	20
Tom Bell	1 (Gov't)	300	--

Chief Comfortjoe told me that a good run of salmon passed Chitina this year, and that the Chitina Indians caught all the fish they needed for the winter, from June 13 to June 30, inclusive. A few Indians fished about two weeks in July.

October 18: Left Chitina at 7:00 a.m., on C.R. & N.W. train for Cordova.

On the train I had quite a lengthy interview with Mr. Bill Berail, whom I had previously met at Gulkana on my way up the river.

In the course of the conversation, I said to him,

"Mr. Berail, I understood you to say that 12 or 15 years ago you dried two or three thousand salmon every season for dog feed, as a means of grubstaking your prospecting each winter,--this being true, and taking into consideration that you have visited the different lakes at the head of Copper River practically every year during the salmon-spawning season for the past 10 or 12 years, it seems to me that you should be in a position to say whether or not the salmon escapement into the head lakes of the Copper River for this season or the last two seasons was sufficient to perpetuate the salmon run for the future, if all the canneries were operating and a normal pack were made."

"I don't know that I could answer that question exactly," he said, "because it would be guess-work on my part."

"Yes," I said, "I can well appreciate and understand the position you take,--but at the same time, you have visited those waters for several years, and you have also dried fish for barter, so you naturally understand the conditions that have existed, as well as the existing situation, and I would, therefore, prefer and appreciate your judgment in the matter more than the opinion of any other person in this locality."

In reply, Mr. Berail continued,

"Well, as I said before, I think the run was better this year than last year, but I don't believe that sufficient salmon reach the headwaters to preserve and keep up the salmon run for the future, if all the canneries were operating in full force and put up a big pack. I haven't noticed the salmon being really plentiful in any of the head streams that I have visited during the last four seasons. I remember several years ago when the lakes and creeks emptying into the head Copper River were thick with salmon. In fact, I have seen the lakes just covered in places with floating dead spawned salmon, and the shores of the lakes were also strewn with dead fish."

I questioned Mr. Berail as to the amount of dried salmon put up by the Indians living at the head lakes which he had mentioned to me as being good spawning grounds for red and king salmon, and requested him to give me an estimate of the amount.

He said,

"There are altogether about fifty or sixty Indian men living at Mantasta, Bartzulneta, Suslato and Tanada Lakes. Some of the best Indians will put up as high as fifteen bales (40 salmon to the bale) and others will put up maybe one bale,--but I think it would be fair to say that they all put up for winter use, dog feed, and trade, a total of between 14,000 and 15,000 salmon."

Arrived at Cordova at 4:40 p.m.

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The following data covering general characteristics, point of confluence with the main Copper River, and meaning of the Indian names of the principal tributaries to the Copper River, was given to me by the chiefs of the various tribes in the different Indian villages that I visited on this investigation.

Tonsina River

Meaning: (Indians did not remember meaning)

Tributary to the Copper from the west; about 15 miles above Chitina by the Fairbanks Trail. About 50 miles up river to Tonsina Lake.

(Northeasterly direction)

Klutina River

Meaning: "Long way to head lake"

49 miles above Chitina by Fairbanks Trail; empties into Copper River at Copper Center. 32 miles up river to Klutina Lake.

Tazlina River

Meaning: "Swift water river"

Tributary to the Copper from the west; mouth about 60 miles above Chitina by the Fairbanks Trail. Tazlina Lake at its head--about 50 miles.

Gulkana River

Meaning: "Saw tooth or crooked river"

Tributary to the Copper River from the northwest, between Tazlina and Gakona Rivers; about 76 miles from Chitina by the Fairbanks Trail. The river is about 125 miles long.

(Westerly direction)

Gakona River

Meaning: "Rabbit River"

Flows into the Copper River about 80 miles above Chitina by the Fairbanks Trail. No lake. About 65 miles to Gakona Glacier at its head.

Chetsalina River

Meaning: "Red Paint River"  
(So named because the Indians used to paint their faces and hands red on certain occasions.)

Flows into the Copper River from the east, about 100 miles above Chitina,--about 100 miles by trail. Has no lake, but drains Chetaslina Glacier about 50 miles from its mouth.